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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,766	12/09/2003	Reid Edmund Tatge	TI-35556	4307

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EXAMINER	
WANG, BEN C	

ART UNIT	PAPER NUMBER
2192	

NOTIFICATION DATE	DELIVERY MODE
11/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

Office Action Summary	Application No.	Applicant(s)	
	10/731,766	TATGE ET AL.	
	Examiner	Art Unit	
	BEN C. WANG	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendments dated August 26, 2010, responding to the Office action mailed May 26, 2010 provided in the rejection of claims 19.

Claim 19 remains pending in the application and which has been fully considered by the examiner.

Applicant's arguments with respect to claims currently amended have been fully considered but are not persuasive. Please see the section of "Response to Arguments" for details.

Response to Arguments

2. Applicant's arguments filed on October 26, 2010 have been fully considered but they are not persuasive.

In the remarks, Applicant argues that, for examples:

(**A.1**) Applicant contends that *the prior arts* do not disclose optimizing only portions of intermediate code during the linking process (Remarks on pages 3-4).

Examiner Responses:

Examiner respectfully disagrees.

Firstly, Examiner only relies on *Adolphson's* reference to teach "only portions of the intermediate code" (e.g., Fig. 2, selective option 206, intermediate representation module 204;

[0040] - … Selective optimization data 206 is used by back-end compiler 215 to determine whether and to what extent to optimize different component portions of intermediate representation module 204 *[used only portions of the intermediate code]*; – emphasis added).

Secondly, however, Examiner still relies on *Liu's* reference (primary reference) to disclose "optimizing intermediate code during the link process" (e.g., see the **Exhibit A** below for details – Linker Returns Intermediate Objects to Compiler as rendered in [step *308*] with annotated red arrow and other steps – "Compiler Generates Real Objects" [step *312*] and "Real Objects Linked Together by Linker" [step *314*] to finished rest of the linking process – emphasis added).

Thus, the combination of both *Liu* and *Adolphson* indeed disclose "providing intermediate code to be optimized including providing only portions of the intermediate code" as claimed.

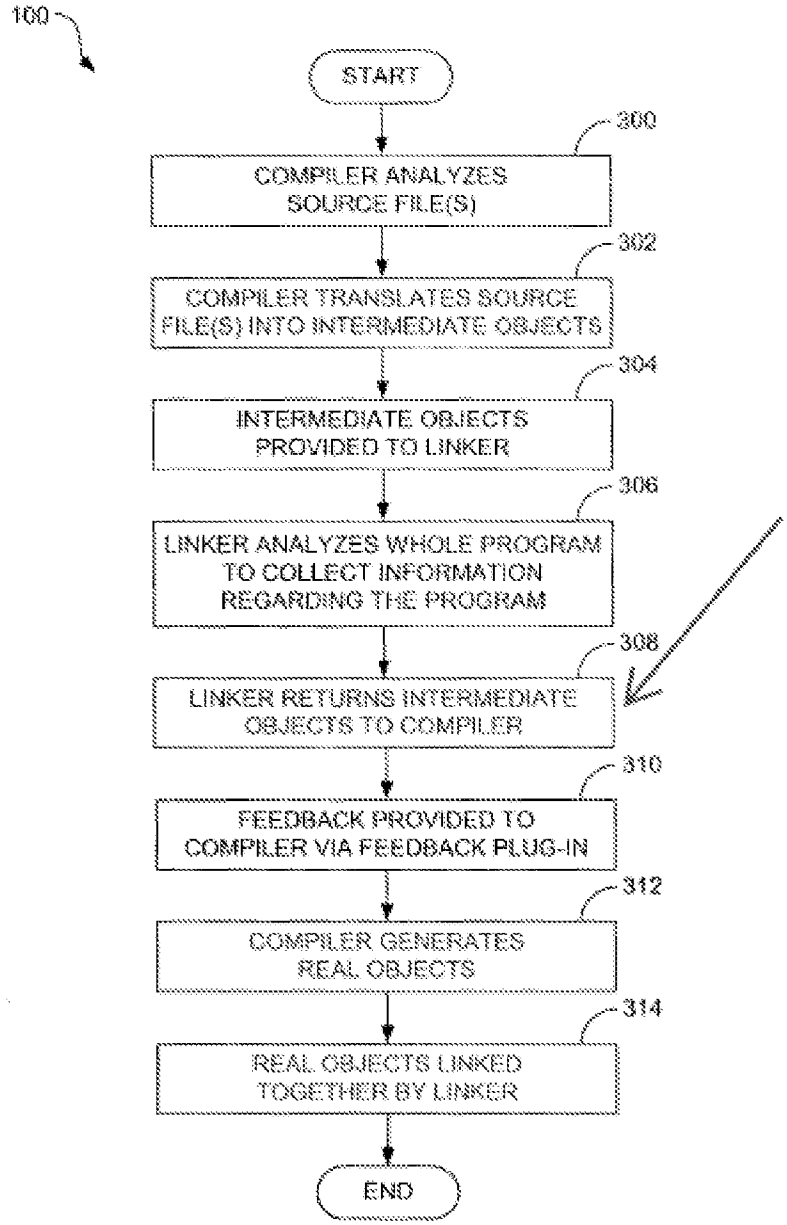

FIG. 3

(**Exhibition A** - excerpted from Figure 3 in *Liu's* reference with limited annotations)

3. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claim Rejections – 35 USC § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (Pub. No. US 2004/0064809 A1) (hereinafter 'Liu') in view of Adolphson et al. (Pub. No. US 2005/0010912 A1) (hereinafter 'Adolphson')

5. **As to claim 19** (Previously Presented), Liu discloses a method of code generation comprising the steps of:

- compiling a source code thereby generating an object file comprising object code and intermediate code (e.g., Fig. 1, elements 104 – Source Program; 112 – Source File; 106 – Compiler 106; [0024] - … The compiler 106 is configured to translate source files 112 of the source program 104 into intermediate object and object files … ; Fig. 3, block 302 – Compiler Translates Source File(s) into Intermediate Objects);
- optimizing the intermediate code into optimized intermediate code (e.g., Fig. 2, element 102 – Translator/Optimizer; Fig. 3, block 308 – Linker returns Intermediate Objects to Compiler; Fig. 4C, block 432 – Compiler Performs any Optimizations available in view of Information provided by the Linker; Fig. 5, block 506 – Compiling the Program with the Compiler in view of the Gathered Information so as to Optimize the Program; [0008] – [0014]) ; and

linking the object file including

- receiving the object file including object code and intermediate code (e.g., Fig. 3, blocks 312 – Compiler Generates Real Objects; 314 – Real Objects linked together by Linker; Fig. 4B, block 416 – Real and Intermediate Objects provide to Linker); and
- producing executable code from the object file including object code and optimized intermediate code (e.g., [0049] - ... the real objects are linked

together by the linker 108 to produce an executable program as indicated in block 314)

Further, Liu discloses translating source objects of the program into intermediate objects using a compiler, providing the intermediate objects to a link, analyzing portions of the program about which the compiler has no knowledge using the linker, updating a global symbol table with information contained in the linker global symbol table to the compiler, and translating the intermediate objects into real objects with the compiler in reference to the information contained in the linker global symbol table so as to optimize the program (e.g., [0010]) but does not explicitly disclose other limitations stated below.

However, in an analogous art of *System and Method for Improved Register Allocation in an Optimizing Compiler*, Adolphson discloses:

- providing intermediate code to be optimized said step of providing intermediate code to be optimized provides only portions of the intermediate code (e.g., Fig. 2, selective option 206, intermediate representation module 204; [0040] - … Selective optimization data 206 is used by back-end compiler 215 to determine whether and to what extent to optimize different component portions of intermediate representation module 204 *[used only portions of the intermediate code]*; – emphasis added;

NOTE:

Firstly, Examiner only relies on *Adolphson's* reference to teach "only portions of the intermediate code" (e.g., Fig. 2, selective option 206, intermediate representation

module 204; [0040] - … Selective optimization data 206 is used by back-end compiler 215 to determine whether and to what extent to optimize different component portions of intermediate representation module 204 *[used only portions of the intermediate code]*; – emphasis added).

Secondly, however, Examiner still relies on *Liu's* reference (primary reference) to disclose "optimizing intermediate code during the link process" (e.g., see the **Exhibit A** above for details – Linker Returns Intermediate Objects to Compiler as rendered in [step *308*] with annotated red arrow and other steps – "Compiler Generates Real Objects" [step *312*] and "Real Objects Linked Together by Linker" [step *314*] to finished rest of the linking process – emphasis added).

Thirdly, as Applicant previously argued prior art references do not disclose "optimizing only portions of intermediate code during the linking process" (the amendment dated February 12, 2010).

Thus, the combination of both *Liu* and *Adolphson* indeed disclose "providing intermediate code to be optimized including providing only portions of the intermediate code")

- receiving optimized intermediate code (e.g., [0034] - … source code written in different forms may be compiled by different front-end compilers to a common intermediate form for further compilation by a common back-end compiler … the common intermediate form being then compiled by different back-end compilers associated with different respective hardware

... back-end compiler 215 has the capability to perform certain optimizations on all, none, or selective portions … - emphasis added)

Therefore, it would have been obvious to one of ordinary skill in the pertinent art, at the time the invention was made to combine the teachings of Adolphson into the Liu's system to further provide other limitations stated above in the Liu system.

The motivation is that it would further enhance the Liu's system by taking, advancing and/or incorporating the Adolphson's system which offers significant advantages that a compiler has the capability to selectively compile individual portions of a compilable code module for optimum execution performance or for serviceability as once suggested by Adolphson (e.g., Abstract)

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben C. Wang whose telephone number is 571-270-1240. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ben C Wang/
Examiner, Art Unit 2192

/Michael J. Yigdall/
Primary Examiner, Art Unit 2192